

SECTION 103

EPOXY-COATED STEEL REINFORCING BARS

103.1 GENERAL

This section covers deformed steel reinforcing bars with protective epoxy-coating applied by the electrostatic spray method.

103.2 REFERENCES

- 103.2.1 ASTM
A 615 A 617
A 616 A 775
- 103.2.2 AASHTO
M 284
- 103.2.3 AMERICAN WELDING SOCIETY
AWS D 1.4

103.3 MATERIALS

103.3.1 BAR REINFORCEMENT: Reinforcing bars shall be deformed, intermediate grade, billet steel conforming with ASTM A 615 or rail steel conforming with ASTM A 616. The latter steel shall be bend-tested and shall meet the bend-test requirements for axle-steel reinforcing bars, ASTM A 617, Grade 60; and the bar markings rolled into the surface of the bars shall include the letter "R" to designate rail steel meeting these requirements.

103.3.2 EPOXY-COATED REINFORCING BARS: When specified in the construction plans or required by the ENGINEER, epoxy-coated reinforcing bars shall conform with AASHTO M 284, utilizing the reinforcing bars defined in Subsection 103.3.1.

103.3.3 BAR MATS: Bar mats shall conform with ASTM A 184, utilizing the reinforcing bars defined in Subsection 103.3.1. Mats shall be fabricated from reinforcing bars. Metal clips shall be epoxy-coated. Nonmetallic clips may be substituted. Coating damage at the clipped or welded intersections shall be repaired in accordance with Subsection 103.3.4.

103.3.4 REPAIR OF COATING: When required, damaged epoxy-coating shall be repaired with patching material conforming with ASTM A 775. Repair shall be done in accordance with the patching material manufacturer's recommendations.

103.4 FABRICATION

All reinforcement shall be bent cold unless otherwise approved by the ENGINEER.

103.5 FIELD INSTALLATION

103.5.1 Epoxy-coated reinforcing bars supported formwork shall rest on coated wire bar supports, or on bar supports made of dielectric material or other acceptable materials. Wire bar supports shall be coated with dielectric material for a minimum distance of 2 inches from the point of contact with the epoxy-coated reinforcing bars. Reinforcing bars used as support bars shall be epoxy-coated. In walls having epoxy-coated reinforcing bars, spreaders where specified by the plans or ENGINEER shall be epoxy-coated. Proprietary combination bar clips and spreaders used in walls with epoxy-coated reinforcing bars shall be made of corrosion resistant material.

103.5.2 Epoxy-coated reinforcing bars shall be fastened with nylon-, epoxy-, or plastic-coated tie wire or other acceptable materials.

103.5.3 Splices of reinforcing bars shall be made only as required or permitted in the construction plans or approved by the ENGINEER.

103.5.4 When required or permitted, all welding of reinforcing bars shall conform to AWS D 1.4. Unless otherwise permitted, welding of crossing bars (tack welding) for assembly of reinforcement is prohibited.

103.5.5 Suitable ventilation shall be provided when welding epoxy-coated reinforcing bars.

103.5.6 After completion of welding on epoxy-coated reinforcing bars, coating damage shall be repaired in accordance with Subsection 103.3.4. All welds, and all steel splice members when used to splice bars, shall be coated with the same material used for repair of coating damage.

103.5.7 When required or permitted, mechanical connections shall be installed in accordance with the splice device manufacturer's recommendations.

103.5.8 After installing mechanical connections on epoxy-coated reinforcing bars, coating damage shall be repaired in accordance with Subsection 103.3.4. All

parts of mechanical connections used on coated bars, including steel splice sleeves, bolts, and nuts shall be coated with the same material used for repair of coating damage.

103.5.9 Reinforcing bars partially embedded in concrete shall not be field bent, except as indicated on the construction plans or approved by the ENGINEER. When heat is used to field bend epoxy-coated reinforcing bars, suitable ventilation shall be provided. When epoxy-coated reinforcing bars are field bent, coating damage shall be repaired in accordance with Subsection 103.3.4.

103.5.10 Unless permitted by the ENGINEER, reinforcing bars shall not be cut in the field. When epoxy-coated reinforcing bars are cut in the field, the ends of the bars shall be coated with the same material used for repair of coating damage.

103.5.11 Equipment for handling epoxy-coated bars shall have protected contact areas. Bundles of coated bars shall be lifted at multiple pickup points to minimize bar-to-bar abrasion from sags in the bundles. Coated bars or bundles of coated bars shall not be dropped or dragged. Coated bars shall be stored in protective cribbing. Fading of the color of the coating shall not be cause for rejection of epoxy-coated reinforcing bars. Coating damage due to handling, shipment and placing need not be repaired in cases where the damaged area is 0.1 square inch or smaller. Damaged areas larger than 0.1 square inches shall be repaired in accordance with Subsection 103.3.4. The maximum amount of damage including repaired and unrepaired areas shall not exceed 2 percent of the surface area of each bar.

103.6 MEASUREMENT AND PAYMENT

Epoxy-coated steel reinforcement will be included in the measurement for this special type of reinforced concrete. Payment will be made at the reinforced concrete's unit price per cubic yard or square yard as defined in the Bid Proposal.